

## WHAT IS CLAIMED IS:

1. A network scanning system having: a connection apparatus including a scanner interface and a network interface, which are connected to a scanner device  
5 connected to a general information processing apparatus, so as to cause said scanner device to function as a network scanner device; and a control apparatus to control said connection apparatus via a network,  
10 wherein said connection apparatus comprising:  
standard input/output means for receiving bitmap image data generated by drawing processing in said control apparatus via said network interface then displaying the bitmap image data on a predetermined  
15 display unit, and outputting an input into a predetermined instruction input unit from a user to said control apparatus via said network interface; and  
scanner communication means for receiving an instruction command to said scanner device issued by  
20 said control apparatus via said network interface then outputting the command to said scanner interface, and transmitting data received via said scanner interface to said control apparatus via said network interface,  
and wherein said control apparatus comprising:  
25 virtual standard input/output means for transmitting bitmap image data drawn in accordance with a request from a scanner control application to said

standard input/output means of said connection apparatus, and notifying said application of an input from said standard input/output means, thereby causing said standard input/output means of said connection apparatus to function as a virtual standard input/output device of said control apparatus; and virtual scanner communication means for transmitting a request command from a scanner driver for said scanner device to said scanner communication means of said connection apparatus, and outputting information from said scanner communication means to said scanner driver, thereby causing said scanner device connected to said connection apparatus to function as a scanner device virtually connected to said control apparatus.

2. The network scanning system according to claim 1, wherein said instruction input unit is a coordinate input panel provided on a display screen of said display unit.

3. The network scanning system according to claim 1, wherein the bitmap image data outputted from said control apparatus includes a display coordinate position and a size of said display unit of said connection apparatus.

4. The network scanning system according to claim 1,  
wherein a communication protocol between said control  
apparatus and said connection apparatus is TCP/IP, and  
wherein an output and an input by said standard  
5 input/output means and said scanner communication means  
use different logic port numbers.

5. The network scanning system according to claim 1,  
wherein said connection apparatus further comprising:  
10 means for receiving plural bitmap image data from  
said control apparatus and storing the data;  
animation display means for, when a start  
instruction is received from said control apparatus,  
displaying the stored bitmap image data at  
15 predetermined time intervals; and  
means for, when a stop instruction is received  
from said control apparatus, stopping said animation  
display means.

20 6. A scanner connection apparatus, having a network  
interface, and a scanner interface which is connected  
to a scanner device connected to a general information  
processing apparatus, which functions as a standard  
input/output device for a control apparatus connected  
25 to a network and which outputs image data read by said  
scanner device to said control apparatus in accordance  
with a request from said control apparatus, comprising:

standard input/output means for receiving bitmap image data generated by drawing processing in said control apparatus via said network interface then displaying the bitmap image data on a predetermined display unit, and outputting an input into a predetermined instruction input unit from a user to said control apparatus via the network interface; and

scanner communication means for receiving an instruction command to said scanner device issued by said control apparatus via said network interface then outputting the command to said scanner interface, and transmitting data received via said scanner interface to said control apparatus via said network interface.

7. A control method for a scanner connection apparatus, having a network interface, and a scanner interface which is connected to a scanner device connected to a general information processing apparatus, which functions as a standard input/output device for a control apparatus connected to a network and which outputs image data read by said scanner device to said control apparatus in accordance with a request from said control apparatus, said method comprising:

a standard input/output step of receiving bitmap image data generated by drawing processing in said control apparatus via said network interface then displaying the bitmap image data on a predetermined

display unit, and outputting an input into a  
predetermined instruction input unit from a user to  
said control apparatus via said network interface; and  
a scanner communication step of receiving an  
5 instruction command to said scanner device issued by  
said control apparatus via said network interface then  
outputting the command to said scanner interface, and  
transmitting data received via said scanner interface  
to said control apparatus via said network interface.

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8. A scanner control apparatus which remote-controls  
via a network a connection apparatus having: a network  
interface; a scanner interface which is connected to a  
scanner device connected to a general information  
15 processing apparatus; standard input/output means for  
functioning as a standard input/output device; and  
scanner connection means for outputting image data read  
by said scanner device connected to said scanner  
interface to a network in accordance with a request  
20 received via said network interface, said scanner  
control apparatus comprising:

virtual standard input/output means for  
transmitting bitmap image data drawn in accordance with  
a request from a scanner control application to said  
25 standard input/output means of said connection  
apparatus, and notifying said application of an input  
from said standard input/output means, thereby causing

said standard input/output means of said connection apparatus to function as a virtual standard input/output device of said scanner control apparatus; and

5           virtual scanner communication means for transmitting a request command from a scanner driver for said scanner device to said scanner communication means of said connection apparatus, and outputting information from said scanner communication means to  
10 said scanner driver, thereby causing said scanner device connected to said connection apparatus to function as a scanner device virtually connected to said control apparatus.

15   9.    A control method for a scanner control apparatus which remote-controls via a network a connection apparatus having: a network interface; a scanner interface which is connected to a scanner device connected to a general information processing  
20 apparatus; standard input/output means for functioning as a standard input/output device; and scanner connection means for outputting image data read by said scanner device connected to said scanner interface to a network in accordance with a request received via said  
25 network interface, said method comprising:

          a virtual standard input/output step of transmitting bitmap image data drawn in accordance with

a request from a scanner control application to said standard input/output means of said connection apparatus, and notifying said application of an input from said standard input/output means, thereby causing  
5 said standard input/output means of said connection apparatus to function as a virtual standard input/output device of said scanner control apparatus;  
and

a virtual scanner communication step of  
10 transmitting a request command from a scanner driver for said scanner device to said scanner communication means of said connection apparatus, and outputting information from said scanner communication means to said scanner driver, thereby causing said scanner  
15 device connected to said connection apparatus to function as a scanner device virtually connected to said control apparatus.

10. A computer program which functions as a scanner  
20 control apparatus which remote-controls via a network a connection apparatus having: a network interface; a scanner interface which is connected to a scanner device connected to a general information processing apparatus; standard input/output means for functioning  
25 as a standard input/output device; and scanner connection means for outputting image data read by said scanner device connected to said scanner interface to a

network in accordance with a request received via said network interface, said program functions as:

virtual standard input/output means for transmitting bitmap image data drawn in accordance with a request from a scanner control application to said standard input/output means of said connection apparatus, and notifying said application of an input from said standard input/output means, thereby causing said standard input/output means of said connection apparatus to function as a virtual standard input/output device of said control apparatus; and

virtual scanner communication means for transmitting a request command from a scanner driver for said scanner device to said scanner communication means of said connection apparatus, and outputting information from said scanner communication means to said scanner driver, thereby causing said scanner device connected to said connection apparatus to function as a scanner device virtually connected to said control apparatus.

11. The computer program according to claim 10, wherein said computer program as said virtual standard input/output means and said virtual scanner communication means is a device driver.



12. A computer program of the scanner control application according to claim 10, which functions as:

drawing request means for requiring said virtual standard input/output means of drawing of an operation  
5 image;

instruction input means for receiving an instruction by a user from said virtual standard input/output means;

interface means for setting scanning conditions  
10 by repeating operations by said drawing request means and said instruction input means;

reading request means for, during setting by said interface means, if the instruction from said virtual standard input/output means relates to start of  
15 scanning, requiring said scanner driver of original reading; and

reception means for receiving an original image via said scanner driver by said reading request means.

20 13. A network scanning system having: a connection apparatus including a scanner interface and a network interface, which are connected to a scanner device connected to a general information processing apparatus, so as to cause said scanner device to function as a  
25 network scanner device; and a control device to control said connection apparatus via a network,

wherein said connection apparatus comprising:

command execution means for receiving an instruction command from said control apparatus via said network interface and executes the command for said scanner interface; and

5        output means for outputting data, received from said scanner interface as a result of execution by said command execution means, to said control apparatus via said network interface,

and wherein said control apparatus comprising:

10        virtual scanner communication means for outputting a request command from a scanner driver for said scanner device, which operates on said control apparatus, to said connection apparatus, and receiving information from said connection apparatus then  
15        outputting the information to said scanner driver, thereby causing said connection apparatus to function as a scanner device virtually connected to said control apparatus.

20    14.    A scanner connection apparatus which connects a scanner device connected to a generation information processing apparatus to a network, comprising:

        a network interface;

        a scanner interface connected to said scanner  
25    device;

        command execution means for receiving an instruction command from a predetermined control

apparatus on said network via said network interface,  
and executing the command for said scanner interface;  
and

output means for outputting data, received from  
5 said scanner interface as a result of execution by said  
command execution means, to said control apparatus via  
said network interface.

15. A control method for a scanner connection  
10 apparatus having a scanner interface which is connected  
to a scanner device connected to a general information  
processing apparatus and a network interface connected  
to a network, comprising:

a command execution step of receiving an  
15 instruction command from a predetermined control  
apparatus on said network via said network interface,  
and executing the command for said scanner interface;  
and

output step of outputting data, received from  
20 said scanner interface as a result of execution at said  
command execution step, to said control apparatus via  
said network interface.

16. A scanner control apparatus which remote-controls  
25 via a network a connection apparatus having: a network  
interface; a scanner interface which is connected to a  
scanner device connected to a general information

processing apparatus; and scanner connection means for  
outputting image data read by said scanner device  
connected to said scanner interface to a network in  
accordance with a request received via said network  
5 interface, said scanner control apparatus comprising:

transmission means for transmitting a request  
command from a scanner driver for said scanner device  
to scanner communication means of said connection  
apparatus; and

10 reception means for receiving information from  
said scanner communication means and outputting the  
information to said scanner driver,

wherein by said transmission means and said  
reception means, said scanner control apparatus causes  
15 said scanner device connected to said connection  
apparatus to function as a scanner device virtually  
connected to said control apparatus.

17. A control method for a scanner control apparatus  
20 which remote-controls via a network a connection  
apparatus having: a network interface; a scanner  
interface which is connected to a scanner device  
connected to a general information processing  
apparatus; and scanner connection means for outputting  
25 image data read by said scanner device connected to  
said scanner interface to a network in accordance with

a request received via said network interface, said method comprising:

5 a transmission step of transmitting a request command from a scanner driver for said scanner device to scanner communication means of said connection apparatus; and

a reception step of receiving information from said scanner communication means and outputting the information to said scanner driver,

10 wherein at said transmission step and said reception step, said scanner device connected to said connection apparatus is caused to function as a scanner device virtually connected to said control apparatus.

15 18. A computer program which functions as a scanner control apparatus which remote-controls via a network a connection apparatus having: a network interface; a scanner interface which is connected to a scanner device connected to a general information processing  
20 apparatus; and scanner connection means for outputting image data read by said scanner device connected to said scanner interface to a network in accordance with a request received via said network interface,

said program functions as:

25 transmission means for transmitting a request command from a scanner driver for said scanner device

to scanner communication means of said connection  
apparatus; and

reception means for receiving information from  
said scanner communication means and outputting the  
5 information to said scanner driver,

wherein by said transmission means and said  
reception means, said program causes said scanner  
device connected to said connection apparatus to  
function as a scanner device virtually connected to  
10 said control apparatus.

19. The computer program according to claim 18,  
wherein said transmission means and said reception  
means are device driver programs.

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